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REMARKS

Claims 1-19 are pending in the present Application. For the reasons below, Applicants traverse all rejections of Claims 1-19 set forth by the Examiner. The Applicants believe the original Claims are distinct and patentable over the prior art and, accordingly, leave the original Claims unamended. Applicants respectfully request the Examiner to reconsider and withdraw all rejections.

I. REJECTIONS UNDER 35 U.S.C. §102(b) - ANTICIPATION

Claims 1, 2, 4, 7, 10, 11-18 are rejected under 35 U.S.C. §102(b), as being anticipated by Lien, et al. (U.S. 6,211,851) [*Lien*].

To facilitate the following Remarks, Applicants herein provide original Claim 1:

1. (Original) A liquid crystal display comprising:
  - a liquid crystal panel assembly including a plurality of gate lines, a data line intersecting the gate lines, and a plurality of pixels connected to the gate lines and the data line;
  - a signal controller receiving image data and a synchronization signal from an external device, processing the image data and generating control signals for displaying the image data;
  - a voltage generator generating a plurality of gray voltages and a gate voltage for driving the panel assembly;
  - a gate driver sequentially scanning the gate lines by, applying the gate voltage, each scanning being performed in a horizontal period including a first period and a second period following the first period;
  - a *master data driver* sequentially applying data voltages selected from the gray voltages corresponding to the image data to the data line, each application is performed in the second period; and
  - a *slave data driver* storing the data voltage applied to the data line in each second period and applying the stored data voltage to the data line in each first period.

Applicants respectfully traverse each and every basis set forth by the Examiner in support of the rejections of Claims 1, 2, 4, 7, 10, and 11-18. The Examiner simply does not make out a valid prima facie case of anticipation under 35 U.S.C. § 102(b), with respect to independent Claim 1, or to Claims 2, 4, 7, 10, and 11-18, which properly depend therefrom.

In order for a prima facie cases of anticipation under 35 U.S.C. § 102(b) to stand, it is required that:

1. "the identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); and
2. each and every element of the claimed invention, arranged as required by the claims, must be found in a single prior art reference (See generally, *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997); *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677-78, 7 USPQ 1315, 1317 (Fed. Cir. 1988); *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick*, 730 F.2d 1452, 1458, 221 USPQ 481, 485 (Fed. Cir. 1984); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)).

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Applicants respectfully submit that the Examiner has not met this required statutory burden, because *Lien* does not show the identical invention as is contained in Applicants' Claim 1, as well as because *Lien* does not contain each and every element of the claimed invention, arranged as required in the accused Claim 1. Without more, there is no prima facie case of anticipation against independent Claim 1, or against Claims 2, 4, 7, 10, 11-18, which properly depend from Claim 1.

Nevertheless, the Examiner advances the fatally flawed prima facie case of anticipation against Claims 1, 2, 4, 7, 10, 11-18 through improper use of inherency. Although an element may imputed under the principles of inherency, the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). In other words, "inherency may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

Therefore, even though an accused claim may share a similarity in characteristic with a cited reference, it also is required that "[t]o serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence [which] must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991) (Emphasis in the original). However, the Examiner advances no extrinsic *evidence* to cure the defective *Lien* reference.

It is not enough that presumption, possibility, or probability be used to imply or assume that a claimed element is necessarily present. The Examiner must provide evidence, and not opinion, that what is missing is present *inherently*, because "[i]n relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). Indeed, in *Levy*, the BPAI reversed the examiner's rejections on the basis that the examiner did not provide objective evidence or cogent technical reasoning to support the conclusion of inherency. In the instant case, as with *Levy*, the Examiner does not provide *objective evidence* or *cogent technical reasoning* but, instead, speculation, supposition, presumption, and opinion. Plainly put, speculation on the part of the examiner does not establish inherency. *See Transclean Corp. v. Bridgewood Services, Inc.*, 290 F.3d 1364, 1372-73, 62 USPQ2d 1865, 1870-71 (Fed. Cir. 2002).

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Thus, Applicants respectfully assert that the Examiner has mistakenly and improperly replaced extrinsic evidence, and/or a basis in fact, and/or technical reasoning with speculation, presumption, possibility, supposition, and opinion.

For example, the Examiner freely speculates to fill in the deficient teachings of *Lien*, with regard to the Applicants' claimed master data driver, slave data driver, signal controller, and voltage generator. Each deficiency itself is fatal to the Examiner's anticipation case.

First, *Lien* shows no master data driver, as is claimed by Applicants in Claim 1. Second, *Lien* shows no slave data driver, as is claimed by Applicants in Claim 1. Third, *Lien* shows no master/slave data driver arrangement, as is claimed by Applicants in Claim 1. Fourth, *Lien* shows no signal controller, as is claimed by Applicants in Claim 1. Fifth, *Lien* shows no voltage generator, as is claimed by Applicants in Claim 1.

With regard to the master data driver claimed by Applicants' in Claim 1, the Examiner alleges that "*the circuit embedded in Lien's driving circuitry supplying actual data voltage during the second portion of the scan data signal,*" is the corresponding element, citing *Lien*, Col. 3, lines 39-41 for support (*Action*, page 3). In fact, Col. 3, lines 39-41 of *Lien* expressly states:

During a scan line time the first portion of the data signal has two purposes: (1) provide a compensation level for the previous data signal and (2) provide the precharge level for the upcoming data level. The second portion of the scan data signal provides the actual data voltage level.

(Emphasis added to the *Lien* text to indicate Col. 3, lines 39-41].

Thus, because the second portion of the scan data signal provides the actual data voltage level, the Examiner presumes that there *necessarily* is an embedded circuit implied *somewhere* in *Lien*. Thus, the Examiner impermissibly speculates about such an "embedded" circuit, because *Lien* does not explicitly show its existence. The Examiner also implies that such an "embedded circuit" is evidence of a master data driver in *Lien* as is claimed by Applicants in Claim 1. Building on this foundation of presumption, speculation, and implication, the Examiner next offers as evidence the opinion that a two-portion data signal implies requisite evidence that a master data driver as is claimed by Applicants in Claim 1, is necessarily present *somewhere* in *Lien*. The Examiner provides speculation, presumption, implication, and opinion – but no evidence – of the necessary presence in *Lien* of a master data driver, as is claimed by Applicants in Claim 1.

With regard to the slave data driver claimed by Applicants' in Claim 1, the Examiner alleges that "*the circuit embedded in Lien's driving circuitry supplying a pre-charge level for upcoming data level*" is the corresponding element, again citing *Lien*, Col. 3, lines 39-41 for support (*Action*, page 3). As pointed out above, Col. 3, lines 39-41 of *Lien* expressly states:

During a scan line time the first portion of the data signal has two purposes: (1) provide a compensation level for the previous data signal and (2) provide the

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precharge level for the upcoming data level. The second portion of the scan data signal provides the actual data voltage level.

(Action, p. 3; emphasis added to the *Lien* text to indicate Col. 3, lines 39-41].

Thus, because the first portion of the data signal has a purpose of providing the precharge level for the upcoming data level, the Examiner again presumes that there *necessarily* is another embedded circuit implied *somewhere* in *Lien*. Thus, the Examiner impermissibly speculates about such a second "embedded" circuit, because *Lien* does not explicitly show its existence. The Examiner also implies that such an "embedded circuit" is evidence of a slave data driver in *Lien* as is claimed by Applicants in Claim 1. Building on this foundation of presumption, speculation, and implication, the Examiner next offers as evidence the opinion that a two-portion data signal also implies requisite evidence that a slave data driver, as is claimed by Applicants in Claim 1, is necessarily present *somewhere* in *Lien*. The Examiner provides speculation, presumption, implication, and opinion – but no evidence – of the *necessary* presence in *Lien* of a slave data driver, as is claimed by Applicants in Claim 1. Moreover, the Examiner admits to using the principles of inherency to impute the existence of a slave data driver, as is claimed by Applicants in Claim 1, because

"it is required for *Lien* to provide the opposite polarity of the previous data signal as a precharging signal in each first period of the next scanning period and thus to require a device to store the previous data signal until the device applies the precharging signal in the next scanning period."

(Action, pp. 3-4).

Again, the Examiner adds speculation, presumption, implication, and opinion, – but no evidence – of the *necessary* presence in *Lien* of a slave data driver, as is claimed by Applicants in Claim 1.

*Lien* shows neither an embedded circuit necessarily and factually corresponding to a master data driver, as is presumed by the Examiner or, more importantly, a master data driver as is claimed by Applicants in Claim 1. Likewise, *Lien* shows neither an embedded circuit necessarily and factually corresponding to a slave data driver, as is presumed by the Examiner or, more importantly, a slave data driver as is claimed by Applicants in Claim 1. In view of these claimed elements missing from the Examiner's anticipation analysis, the Examiner twice fails to make a prima facie case of anticipation under 35 U.S.C. §102(b) against the accused Claims

The Examiner also imputes to *Lien* a signal controller, as is recited in Applicants' Claim 1, by asserting that

"*Lien* [fig. 3] teaches a signal controller (the circuit supplying control signals for data driver and gate driver) receiving image data and a synchronization signal ("data driver clock" or "clock line 26") from an external device, processing the image data and generating control signals ("data driver reset", "data driver enable", "gate driver enable", ...) for displaying the image data."

(Action, p. 3)

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This analysis also falls far short of the requirement for anticipation of teaching each and every element of the claimed invention, arranged as required in the accused Claim 1. If nothing else, the Examiner mixes apples and oranges. For example, the Examiner speculates that the signal controller recited in Applicants' Claim 1 is necessarily present because an unseen source in *Lien* allegedly supplies control signals for a data driver and a gate driver.

According to the Examiner's analysis, the presumed circuit supplying control signals for the data driver and the gate driver is the same device as the presumed circuit receiving image data and a synchronization signal, i.e., "data driver clock" (15) or "clock line 26", from an external device. This presumed circuit supplying control signals for the data driver and the gate driver is the same device as the presumed circuit processing the image data. Also, this presumed circuit supplying control signals for the data driver and the gate driver is the same device as the presumed circuit generating control signals for displaying the image data.

In FIG. 3, *Lien* shows that the device(s) receiving the alleged synchronization signals "data driver clock" (15) or "clock line 26", is either data driver shift register 16 or gate driver 24, respectively. Synchronization signals "data driver clock" (15) or "clock line 26" apparently are received from an unseen source(s), external to FIG. 3. Data driver shift register 16 of *Lien*, FIG. 3, is described as the data driver. Therefore, neither shift register 16 nor gate driver 24 are shown as supplying the signals they also allegedly receive. Certainly, the unseen presumed circuit supplying control signals for the data driver and the gate driver is not shown as receiving alleged synchronization signals "data driver clock" (15) or "clock line 26". Under any analysis, what the Examiner speculates about the device(s) shown in FIG. 3 of *Lien* does not provide factual evidence that *Lien necessarily* shows a signal generator receiving image data and a synchronization signal from an external device, as recited in pertinent part by Applicants in Claim 1. Thus, in addition to being speculative, the Examiner's analysis is incorrect.

Next, there simply is no information in FIG.3 of *Lien*, or in the accompanying text, to evidence that the presumed external circuit supplying control signals for data driver and gate driver is the same as the presumed circuit processing the image data, or that any such presumed circuit is necessarily present. FIG. 3 does not provide factual evidence that *Lien necessarily* shows a signal generator processing the image data, as is recited in pertinent part by Applicants in Claim 1. Again, in addition to being speculative, the Examiner's analysis is incorrect.

Moreover, there is not enough information in FIG. 3 of *Lien*, or in the accompanying text, to evidence that the unseen presumed circuit supplying control signals for the data driver and the gate driver is the same device as the presumed circuit generating control signals for displaying the image data. Such a conclusion is speculative, at best. Even so, the Examiner adduces no evidence whatsoever that the unseen presumed circuit supplying control signals for the data driver and the gate

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driver, or the presumed circuit generating control signals for displaying the image data, corresponds to the signal controller element of the claimed invention, arranged as required in the accused Claim 1.

In view of the foregoing factual and logical errors with respect to the signal controller element as recited in Claim 1, the Examiner fails thrice in attempting to fashion a prima facie case of anticipation under 35 U.S.C. §102(b) and for yet additional reasons, the rejections of Claims 1, 2, 4, 7, 10, and 11-18 cannot stand.

With respect to the voltage generator element recited, in pertinent part, by Applicants in Claim 1, the Examiner again seeks support for rejection using inherency armed only with speculation. In particular, the Examiner states:

Lien inherently teaches a voltage generator generating a plurality of gray voltages and a gate voltage for driving the panel assembly since it is required for any type of liquid crystal device to apply gray scale voltage to pixels included in a display device to change the alignment of the liquid crystal display device to produce various gradations on a display and to apply a gate voltage to turn on the switching device included in a pixel, thus to allow the pixel to receive the data voltage.

(Action, p. 3)

By this statement, the Examiner admits that *Lien* does not teach a voltage generator. Nevertheless, the Examiner puts the rabbit into the hat by speculating that *Lien* teaches a voltage generator generating a plurality of gray voltages and a gate voltage for driving the panel assembly, as is recited by Applicants in Claim 1. To arrive at this opinion, the Examiner opines that application of gray scale voltage to pixels is required for any type of liquid crystal device. Applicants respectfully assert that this aspect of the Examiner's prima facie case of anticipation also is rife with impermissible speculation, and that the Examiner adduces no extrinsic evidence, basis in fact, and/or technical reasoning, as is required when making out an anticipation rejection. Therefore, once again, the Examiner fails to show that *Lien* necessarily presents the voltage generator element of the claimed invention, arranged as required in the accused Claim 1.

Therefore, Applicants assert that for each of the foregoing reasons, the prima facie case of anticipation set forth by the Examiner under 35 U.S.C. §102(b) is fatally flawed, and that Claims 1, 2, 4, 7, 10, and 11-18 are each patentably distinct over the *Lien* reference. Applicants respectfully request that the Examiner carefully reconsider and withdraw the rejections of Claims 1, 2, 4, 7, 10, and 11-18 under 35 U.S.C. §102(b).

## **II. REJECTIONS UNDER 35 U.S.C. §103(a) - OBVIOUSNESS**

### **A. REJECTIONS OF CLAIMS 3 AND 5**

Claims 3 and 5 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Lien* in view of Washio, et al. (U.S. 6,873,313) [*Washio*].

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In response, Applicants respectfully point out to the Examiner that the *Lien* reference is incompetent to stand as an invalidating reference under 35 U.S.C. §102(b) because it lacks, at a minimum, explicit teaching of a master data driver, a slaver data driver, a signal generator, or a voltage generator. These defects, fatal to anticipation rejections, also are fatal to a prima facie case of obviousness under 35 U.S.C. §103(a).

Rejections based on 35 U.S.C. § 103 must rest on a factual basis. *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177-78 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968). In making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *Id.*

Regarding Claims 3 and 5, the Examiner is compelled to fill in with speculation the requisite gaps in *Lien* to make out a prima facie case of obviousness under 35 U.S.C. §103(a), alone or in combination with *Washio*, thus *Lien* also is a fatally flawed foundation upon which to base obviousness rejections, alleged inherency notwithstanding.

In the present case, the examiner has failed to advance any factual basis to support the conclusion that it would have been obvious to one of ordinary skill in the art to modify the [art] in the manner proposed. Thus, Claims 3 and 5 are each patentably distinct over the *Lien* reference, taken alone or in combination with *Washio*. Thus, Applicants respectfully request that the Examiner carefully reconsider and withdraw the rejections of Claims 3 and 5 under 35 U.S.C. §103(a).

#### B. REJECTION OF CLAIM 6

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Lien* in view of Lautzenhiser (US Pub. No. 2002/0149503) [*Lautzenhiser*].

In response, Applicants once again point out that rejections based on 35 U.S.C. §103(a) must rest on a factual basis. *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177-78 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968). In making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *Id.*

Regarding Claim 6, the Examiner is compelled to fill in with speculation the requisite gaps in *Lien* to make out a prima facie case of obviousness under 35 U.S.C. §103(a), alone or in combination with *Lautzenhiser*, thus *Lien* also is a fatally flawed foundation upon which to base obviousness rejections, alleged inherency notwithstanding.

In the present case, the examiner has failed to advance any factual basis to support the conclusion that it would have been obvious to one of ordinary skill in the art to modify the [art] in the manner proposed. Thus, Claim 6 is patentably distinct over the *Lien* reference, taken alone or in

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combination with *Lautzenhiser*. Thus, Applicants respectfully request that the Examiner carefully reconsider and withdraw the rejection of Claim 6 under 35 U.S.C. §103(a).

**C. REJECTION OF CLAIMS 8, 9, AND 19**

Claims 8, 9, and 19 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Lien*. As with the foregoing anticipation rejections discussed in Section I, above, and with the foregoing obviousness rejections of Claims 3 and 5 in Section II. A and B, above, *Lien* also is a fatally flawed foundation upon which to make out a prima facie case of obviousness under 35 U.S.C. §103(a), allegations of inherency notwithstanding, and is particularly defective as a basis for a single-reference obviousness rejection.

Any rejection based on 35 U.S.C. § 103(a) must rest on a factual basis. *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 177-78 (CCPA 1967), *cert. denied*, 389 U.S. 1057 (1968). In making such a rejection, the examiner has the initial duty of supplying the requisite factual basis and may not, because of doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. *Id.*

Moreover, there must be a motivation to alter a single reference or to combine multiple references to render the claims of a patent obvious. See, e.g., *Tec Air, Inc. v. Denso Mfg. Michigan, Inc.*, 192 F.3d 1353, 1359, 52 USPQ2d 1294, 1298 (Fed. Cir. 1999) (motivation to combine multiple references); *B.F. Goodrich v. Aircraft Braking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996) (motivation to modify a single reference); *Grain Processing Corp. v. American Maize-Products Co.*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988) ("Care must be taken to avoid hindsight reconstruction by using 'the [Applicant's claims] as a guide through the maze of prior art references, combining the right references in the right way so as to achieve the result of the claims in suit.'") (internal citation omitted); *In re Fine*, 837 F.2d 1071, 1075, 5 USPQ2d 1596, 1600 (Fed. Cir. 1988) ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.").

Quite simply, the Examiner has not provided any factual foundation for an obviousness rejection based on the single-reference to *Lien* and, for the foregoing reasons, *Lien* is an incompetent reference under either on 35 U.S.C. § 102(b) or on 35 U.S.C. § 103(a). In the present case, the Examiner failed to advance any factual basis to support the conclusion that it would have been obvious to one of ordinary skill in the art to modify the [art] in the manner proposed. Claims 8, 9, and 19 are patentably distinct over the *Lien* reference. Thus, Applicants respectfully request that the Examiner carefully reconsider and withdraw the rejection of Claim 8, 9, and 19 under 35 U.S.C. §103(a).

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**III. CONCLUSION**

Accordingly, Applicants respectfully submit that Claims 1-19, as originally submitted are in proper form for allowance. Reconsideration and withdrawal of objections and the rejections are respectfully requested and a timely Notice of Allowance is kindly solicited.

If there are any questions regarding any aspect of the application, please call the undersigned at (949) 752-7040.

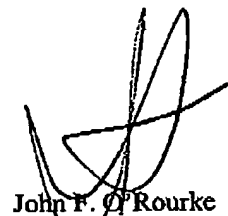
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